

COMMONWEALTH OF VIRGINIA
Department of Environmental Quality
Fredericksburg Satellite Office

STATEMENT OF LEGAL AND FACTUAL BASIS

Cellofoam North America Inc
Falmouth (Stafford County), Virginia
Permit No. FSO40696

Title V of the 1990 Clean Air Act Amendments required each state to develop a permit program to ensure that certain facilities have federal Air Pollution Operating Permits, called Title V Operating Permits. As required by 40 CFR Part 70 and 9 VAC 5 Chapter 80, Cellofoam North America Inc. has applied for a Title V Operating Permit for its expanded polystyrene insulation board manufacturing facility located in Falmouth, Virginia. The Department of Environmental Quality (DEQ) has reviewed the application and has prepared a draft Title V Operating Permit.

Engineer/Permit Contact:_____ Date:_____

Air Permit Manager:_____ Date:_____

Regional Permit Manager:_____ Date:_____

FACILITY INFORMATION

Permittee

Cellofoam North America Inc
P.O. Box 406
Conyers, Georgia 30012

Facility

Cellofoam North America Inc
Falmouth Facility
33 Baron Park Road
Falmouth, Virginia 22405

AIRS ID No. 51-179-0029

SOURCE DESCRIPTION

SIC Code: 3086 - Manufacture of expanded polystyrene insulation boards

Cellofoam's Falmouth, Virginia facility manufactures polystyrene insulation boards for the construction industry. Expandable polystyrene (EPS) beads, with pentane as the blowing agent, are received at the facility. The beads are first pre-expanded in a pressurized steam expander, using steam from a natural gas-fired boiler. After pre-expansion, the beads are dried, screened and transported to aging bags for cooling and stabilization for about 24 hours. The stabilized beads are then conveyed to block molding machines in which pressurized steam is injected and the expanded beads fuse together to form large insulation blocks of expanded polystyrene. The molded product is then sent to storage for aging and stabilization for approximately 2 to 7 days, depending upon product specifications. The aged blocks are then cut with hot wire to the desired sizes of the final product. Some of the product material is laminated using an adhesive. The finished product is wrapped and shipped off site.

Pentane (a volatile organic compound) loss through the board manufacturing process constitutes the primary source of emissions from this facility. Additional small quantities of volatile organic compounds are emitted from the adhesives used in the lamination process.

The facility has the potential-to-emit 98.4 tons per year of volatile organic compounds, and insignificant levels for all other regulated pollutants. The facility is located in an area classified as a serious ozone non-attainment area for which a source with the

potential-to-emit 50 tons per year or more of VOCs or oxides of nitrogen is considered a Title V major source. The facility is currently permitted under a minor new source review (NSR) permit issued on October 24, 2000. Effective August 10, 1998, the facility entered into a Consent Agreement for the purposes of establishing Reasonably Available Control Technology (RACT) in accordance with 9 VAC 5-40-300. The applicable requirements contained in the RACT Consent Agreement serve as the means of achieving compliance with the federally and state enforceable standard for volatile organic compounds of 9 VAC 5-40-300. The RACT standard is the basis for VOC emissions control for this plant. On September 22, 1998, the complete RACT package for Cellofoam's Falmouth facility was sent to the US EPA Region III for approval as a revision to the Commonwealth of Virginia State Implementation Plan (SIP). The Tuesday, January 2, 2001 Federal Register (Vol. 66, No.1) announced EPA's approval of Cellofoam's RACT Consent Agreement as a Virginia SIP revision, making the terms of the RACT agreement federally enforceable. When the draft Title V permit was advertised for public comment on November 30, 2000, the RACT Consent Agreement was a state-only enforceable document. Consequently, the terms of the RACT Consent Agreement were not included in the draft Title V permit as federal applicable requirements. However, the October 24, 2000 NSR permit incorporates all of the practically enforceable terms of the RACT, thereby enabling consistency between the governing NSR permit and the RACT Consent Agreement. By incorporating the conditions of the NSR permit into the Title V permit, the terms of the RACT Consent Agreement are effectively, federally enforceable. Since no additional requirements have to be incorporated into the proposed Title V permit resulting from EPA's approval of the RACT Consent Agreement, the proposed Title V permit will not have to be re-advertised for public comment.

COMPLIANCE STATUS

The facility is inspected once a year. The most recent inspection on April 25, 2000, determined that the facility was operating not in compliance due to the installation of a new block molding machine without the required minor new source review permit. On July 21, 2000, a permit application was submitted for the new emissions unit. The DEQ issued Cellofoam the necessary permit for the new block molding machine on October 24, 2000.

EMISSION UNIT AND CONTROL DEVICE IDENTIFICATION

The significant emissions units at this facility consist of the following :

P1: This emission unit identification includes VOC emissions (i.e., as pentane as blowing agent in the EPS material) from EPS bead box opening, pre-expander/dryer (PE-1), pre-puff bead conditioning & storage (BCS-1), block molding (BM-1), block storage (BS-1), and board cutting (BC-1). The maximum rated capacity of EPS board production is 981 pounds per hour.

L1: This emission unit identification includes VOC and hazardous air pollutant emissions from the use of adhesive to laminate insulation boards. The maximum rated capacity of the laminator is measured as 10 gallons per hour of adhesive applied. This capacity is expressed as 8,750 square feet per hour of material laminated.

There is no air pollution control equipment at the facility for these emission sources.

EMISSIONS INVENTORY

A copy of the facility's 1999 Calendar Year annual emission update is enclosed as Attachment A. The actual criteria and hazardous air pollutant emission data from this annual emission update are summarized in the following table.

1999 Annual Criteria Pollutant Emissions in Tons/Year					
Emission Unit	VOC	CO	SO ₂	PM ₁₀	NO _x
P1	32.62	-	-	-	-
L1 ^a	0.15	-	-	-	-
B1 ^b	0.03	-	-	-	0.91
Total	32.8	-	-	-	0.91

Notes:

^a VOC emissions from Emission Unit L1 are 90 percent VHAPS, consisting of xylene and ethyl benzene

^b Emission unit B1 is an insignificant emission unit described in the Insignificant Emissions Units section of this document.

EMISSION UNIT APPLICABLE REQUIREMENTS - Emission Units P1 and L1

Limitations

The following applicable VOC limitations are State BACT and/or RACT requirements from Conditions 3, 4, 5, 6, 7 and 8 of the minor NSR permit issued October 24, 2000, and subsumed (see Streamlined Requirements section of this document) requirements from Paragraphs E.2 and E.3 of the RACT Consent Agreement, dated August 10, 1998 (U.S. EPA approved on January 2, 2001). A copy of the NSR permit is enclosed as Attachment B. A copy of the RACT Consent Agreement is enclosed as Attachment C.

Condition 3 limits the annual consumption of adhesive in the laminator, L1, to no more than 8,300 gallons per year, calculated monthly as the sum of each consecutive twelve month period.

Condition 4 limits the adhesive VOC content to 0.47 lb VOC/gal of adhesive, as applied.

Condition 5 limits annual processing of expandable polystyrene (EPS) beads to 2,890 tons per year, calculated monthly as the sum of each consecutive twelve month period.

Condition 6 limit the EPS beads processed at the facility to have an *initial* VOC weighted average (initial pentane content) of no more than 5 percent by weight, calculated on a weekly (i.e., calendar week) basis. For the purposes of this limitation as well as references throughout this document and the Title V permit, a calendar week is seven days beginning at 00:00:00 on Sunday and ends at 23:59:59 on the following Saturday.

Condition 7 limits VOC emissions from the operation of the laminator to 2.0 tons per year, calculated monthly as the sum of each consecutive twelve month period.

Condition 8 limits VOC emissions from the combined operation of P1 and L1 to 98.4 tons per year, calculated monthly as the sum of each consecutive twelve month period.

The following Virginia Administrative Codes that have specific emission requirements have been determined to be applicable, but have not been included in the permit because the nature of the EPS expansion, molding, storage and lamination processes does not have the potential for visible emissions:

9 VAC 5-50-80 and 290, New Source Standard for Visible Emissions

Monitoring and Recordkeeping

The monitoring and recordkeeping requirements in Condition 9 of the October 24, 2000, minor NSR permit as well as paragraph E.5 of the August 10, 1998 RACT Consent Agreement are consistent with Part 70 requirements. The permittee will monitor and record the following:

- The monthly and annual (each consecutive 12 month period) consumption of each adhesive used in the lamination process, and the VOC content of each adhesive applied.
- The Material Safety Data Sheets (MSDS) or Certified Product Data Sheets (CPDS) showing VOC content (i.e., percentage by weight and measured by an EPA approved test method (e.g., 40 CFR part 60, Appendix A - EPA Method 24)) for each adhesive applied.
- The monthly and annual (each consecutive 12 month period) VOC emissions from the operation of the laminator to demonstrate compliance with the annual VOC emission limitation placed on the laminator as well as the facility wide VOC emission limitations.
- The daily quantity of each lot (shipment) of expandable polystyrene (EPS) beads processed and the percentage of initial VOC contained in each lot (shipment) of EPS beads processed to determine compliance with the 5 percent weekly average limit. This is to be accomplished by the permittee maintaining a detailed daily material log which includes daily entries indicating the bead lot numbers processed, the corresponding manufacturer's certified initial VOC content of the EPS beads processed and the quantity (in pounds) of each lot processed that day.
- The weekly (i.e., calendar week) calculated weighted average VOC content of the EPS beads and the quantity of the EPS beads processed that week.
- The monthly and annual (each consecutive 12 month period) quantity of EPS beads processed.
- The DEQ approved retention factor and the retention factor results of the residual pentane in the finished expanded polystyrene product. (The permit includes a requirement to perform testing to determine VOC retention in the finished product. Retention is used in the VOC emission calculation from the EPS board manufacturing process.)
- The monthly and annual (each consecutive 12 month period) total VOC emissions

from the operation of the laminator (L1) and from EPS bead processing (P1).

Testing

The permit requires testing of the expanded polystyrene as finished product to determine the residual amount of VOC retained with the product as shipped off-site. The determination of the actual residual VOC amount is necessary in the calculations to demonstrate compliance with the facility wide VOC limit of 98.4 tons per year. Testing shall be performed using South Coast Air Quality Management District Method 306-9, Analysis of Pentanes in Expandable Styrene Polymers, or other method approved in writing by the DEQ.

The permit does not require source emission tests. A table of test methods has been included in the permit if testing is performed. The Department and EPA have authority to require testing not included in this permit if necessary to determine compliance with an emission limit or standard.

Reporting

Consistent with Condition 11 of the October 24, 2000 minor NSR permit as well as paragraph E.6 of the August 10, 1998 RACT Consent Agreement, the proposed Title V permit includes calendar quarterly VOC emission data reporting requirements. The quarterly reports shall be submitted within 30 days following the end of each calendar quarter. The quarterly reports are to provide the following information:

- 1) For each calendar week in the reporting quarter, the weekly calculated weighted average initial VOC content (in percent, %) of the EPS beads and the quantity (in pounds) of the EPS beads processed that week. For the purposes of this reporting requirement, and elsewhere as applicable, a calendar week is in a reporting quarter, if four (4) or more days of the calendar week are in a calendar month of the reporting quarter.
- 2) For each calendar month in the reporting quarter, the monthly and rolling 12 month amount (in pounds) of EPS beads processed.
- 3) For each calendar month in the reporting quarter, the monthly and rolling 12 month amount (in gallons) of adhesive consumed by the laminator.

4) For each calendar month in the reporting quarter, the monthly and rolling 12 month VOC emissions (in tons) from the quantity of EPS beads processed and adhesive consumption.

Streamlined Requirements

The following terms in the August 10, 1998 RACT Consent Agreement have not been included in the proposed Title V permit for the reasons provided:

Paragraph E.1 requiring VOC emissions from the affected facility to be controlled and reduced as outlined in this Agreement. There are no specific requirements stated. The VOC emission control and reduction requirements specified in Paragraph E.3 have been included in the proposed Title V permit.

Paragraph E.2 and E.3 requiring VOC emissions from the expanded polystyrene production plant to be controlled by the use of low and reduced VOC polystyrene beads. Condition 6 of the October 24, 2000 minor NSR permit contains more clear and stringent requirements as to the type of beads that may be processed at this facility. Condition III.A.4 of the proposed Title V permit contains the requirements of Condition 6 of the October 24, 2000 minor NSR permit and the subsumed requirements of Paragraph E.2 and E.3 of the August 10, 1998 RACT Consent Agreement.

Paragraph E.7 requiring Cellofoam to comply with all applicable provisions of the SAPCB Regulations including the requirements for monitoring, notification, recordkeeping, reporting, maintenance, and malfunction. This requirement is very generic in nature and is required by Cellofoam regardless of its inclusion in this document. The proposed Title V permit for this facility clearly identifies the specific monitoring, recordkeeping and reporting requirements necessary for Cellofoam to demonstrate its compliance status with all federally applicable requirements.

GENERAL CONDITIONS

The permit contains general conditions required by 40 CFR Part 70 and 9 VAC 5-80-110, that apply to all Federal operating permit sources. These include requirements for submitting semi-annual monitoring reports and an annual compliance certification report. The permit also requires notification of deviations (including those caused by upsets) from permit requirements that may cause excess emissions for more than one hour, within four daytime business hours.

STATE ONLY APPLICABLE REQUIREMENTS

The permittee did not identify any state-only enforceable applicable requirements in their application; therefore, no state-only applicable requirements have been included in the Title V permit.

FUTURE APPLICABLE REQUIREMENTS

The permittee did not identify any specific future applicable requirements in their application, and the DEQ is not presently aware of any requirements to that may apply to the facility during this Title V permit term. Therefore, no specific future applicable requirements have been included in the Title V permit.

INAPPLICABLE REQUIREMENTS

The permittee did identify the following federally enforceable requirement as inapplicable to their facility:

The general process weight rate emission standards in 9 VAC 5 Chapter 40.

While not specifically stated by the permittee, the permittee is most probably referencing 9 VAC 5-40-260, Standard for particulate matter (AQCR 1-6). The permittee has reasoned that due to the nature of the manufacturing operations at their facility, process emissions are gaseous emissions and not particulate matter emissions.

The DEQ concurs with the permittee's logic, but this requirement has not been included in the Title V permit as an inapplicable requirement, since 9 VAC 5-40-260 applies to existing sources and not to the following:

- 1) Any stationary source (or portion of it), the construction, modification or relocation of which commenced on or after March 17, 1972.
- 2) Any stationary source (or portion of it), the reconstruction of which commenced on or after December 10, 1976.

Construction of Cellofoam's Falmouth facility began circa October 1980, and is permitted under the new and modified source regulations.

COMPLIANCE PLAN

Cellofoam's Falmouth, Virginia facility is currently in compliance with all applicable requirements and no compliance plan was included in the permit application; therefore, no compliance plan appears in the Title V permit.

INSIGNIFICANT EMISSION UNITS

The insignificant emission units are presumed to be in compliance with all requirements of the Clean Air Act as may apply. Based on this presumption, no monitoring, recordkeeping or reporting shall be required for these emission units in accordance with 9 VAC 5-80-110.

Insignificant emission units include the following:

Emission Unit No.	Emission Unit Description	Citation ¹ (9 VAC_)	Pollutant Emitted (5-80-720 B.)	Rated Capacity (5-80-720 C.)
B1	Natural Gas Fired Boiler	5-80-720 C.2.a.	-	9.0 MMBTU/HR
S1	Four (4) space heaters	5-80-720 A.4	-	-

¹The citation criteria for insignificant activities are as follows:

9 VAC 5-80-720 A - Listed insignificant activity

9 VAC 5-80-720 B - Insignificant due to emission levels

9 VAC 5-80-720 C - Insignificant due to size or production rate

CONFIDENTIAL INFORMATION

The permittee did not submit a request for confidentiality with their application. Therefore, all portions of the Title V application are suitable for public review.

PUBLIC PARTICIPATION

A public notice regarding the draft permit was placed in the November 30, 2000 edition of *The Free Lance-Star*. *The Free Lance-Star* is published daily and is the local newspaper of general circulation in the area where Cellofoam is located. By this notice, public comments were accepted from November 30, 2000 through January 3, 2001. Additionally, the information contained in the official public notice was sent to the following persons for the stated purposes:

1. DEQ's Bill Hayden for posting on the DEQ's website.
2. DEQ's Cindy Berndt for publishing in the *Virginia Register*.
3. David Mummert, contact for the affected State of Maryland, in accordance with 9 VAC 5-80-290 B.
4. Stan Tracey, contact for the affected District of Columbia, in accordance with 9 VAC 5-80-290 B.
5. All persons on DEQ's current (November 13, 2000) Mailing List, in accordance with 9 VAC 5-80-270 B.
6. US EPA Region III's Dave Campbell for review and comment.

Additionally, the information as contained in the official public notice was made available to anyone who wanted to see it.

During the public comment period, there were no requests received for a public hearing. The only comments received on the draft Title V permit and Statement of Legal and Factual Basis were two from the United States Environmental Protection Agency (EPA). EPA wanted the permit to explicitly state that VOC data provided on the MSDS or CPDS for the adhesive be based on an approved EPA Test Method. The proposed permit now requires that the VOC information be determined using approved EPA test methods (e.g., 40 CFR part 60 Appendix A - EPA Method 24).

EPA's other comment was to remove the reference to EPS bead MSDS and require the bead VOC data sheet be "certified" by the supplier. The proposed permit does just this by requiring the bead supplier's "Certificate of Analysis" with each shipment of beads to the facility.

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ATTACHMENT A

1999 CALENDAR YEAR ANNUAL EMISION UPDATE

ATTACHMENT B

**MINOR NEW SOURCE REVIEW PERMIT
(DATED OCTOBER 24, 2000)**

ATTACHMENT C

RACT CONSENT AGREEMENT

**(August 10, 1998 - Approved by the Commonwealth of
Virginia)**

**(January 2, 2001 - Approved by the U.S. Environmental
Protection Agency)**

ATTACHMENT D

PROCESS EMISSION CALCULATIONS